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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/681,279	10/09/2003	Guido Schmitz	243915US0CONT	5991

22850 7590 11/07/2005

OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER	
BRUENJES, CHRISTOPHER P	
ART UNIT	**PAPER NUMBER**
1772	

DATE MAILED: 11/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	**Application No.** 10/681,279	**Applicant(s)** SCHMITZ ET AL.	
	Examiner Christopher P. Bruenjes	**Art Unit** 1772	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 September 2005*.
2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16,19,20,23-34 and 37-69* is/are pending in the application.
4a) Of the above claim(s) *34 and 69* is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-16,19,20,23-33 and 37-68* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a)☐ All b)☐ Some * c)☐ None of:
1.☐ Certified copies of the priority documents have been received.
2.☐ Certified copies of the priority documents have been received in Application No. _____.
3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date *20050919*.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Newly submitted claim 69 is directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: Claims 69 relates to the same non-elected invention as claim 34. Therefore, claim 69 is withdrawn for the same reasons as previously discussed with regard to claim 34. Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claim 69 is withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Information Disclosure Statement

2. The information disclosure statement filed September 19, 2005 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. The documents that have been provided have been considered. The documents that have been crossed out

on the 1449 form have not been considered because a copy of those documents has not been provided.

WITHDRAWN REJECTIONS

3. The double patenting rejections of claims 1-7, 9-14, 20, 24, 29, and 35 over claims 1-12 of U.S. Patent No. 6,677,015 of record in the Office Action mailed May 17, 2005, Pages 4-5 Paragraph 4, have been withdrawn due to Applicant's amendments in the Paper filed September 26, 2006.

4. The double patenting rejections of claims 35-36 over claims 1-37 of U.S. Patent No. 6,783,821 of record in the Office Action mailed May 17, 2005, Pages 5-6 Paragraph 5, have been withdrawn due to Applicant's amendments in the Paper filed September 26, 2005.

5. The double patenting rejections of claims 1-15, 17-19, 23-33 and 35 over claims 1-31 of U.S. Patent No. 6,355,358 in view of Hudak of record in the Office Action mailed May 17, 2005, Pages 8-11 Paragraph 7, have been withdrawn due to Applicant's amendments in the Paper filed September 26, 2005.

6. The objection to the abstract of record in the Office Action mailed May 17, 2005, Page 11 Paragraph 8, has been withdrawn due to Applicant's amendments in the Paper filed September 26, 2005.

7. The 35 U.S.C. 102 rejections of claims 1-19, 21, 23-33, and 36 as anticipated by Mitchell of record in the Office Action mailed May 17, 2005, Pages 12-13 Paragraph 10, have been withdrawn due to Applicant's amendments and arguments in the Paper filed September 26, 2005.

8. The 35 U.S.C. 102 rejection of claim 36 as anticipated by Ishida of record in the Office Action mailed May 17, 2005, Pages 13-14 Paragraph 11, have been withdrawn due to Applicant's cancellation of the claim in the Paper filed September 26, 2005.

9. The 35 U.S.C. 102 rejections of claims 1-7, 9-14, 20, 24, 29, and 35 of record in the Office Action mailed May 17, 2005, Pages 14-15 Paragraph 12, have been withdrawn due to Applicant's amendments in the Paper filed September 26, 2005.

10. The 35 U.S.C. 102 rejection of claim 35 as anticipated by Boer of record in the Office Action mailed May 17, 2005, Pages

15-17 Paragraph 13, have been withdrawn due to Applicant's cancellation of the claim in the Paper filed September 26, 2005.

11. The 35 U.S.C. 103 rejections of claims 1-19, 21-33, and 35-36 over Mitchell in view of Borggreve of record in the Office Action mailed May 17, 2005, Pages 18-19 Paragraph 14, have been withdrawn due to Applicant's amendments and arguments in the Paper filed September 26, 2005.

12. The 35 U.S.C. 103 rejection of claim 20 over Mitchell in view of Borggreve and Hata of record in the Office Action mailed May 17, 2005, Pages 19-20 Paragraph 15, have been withdrawn due to Applicant's amendments and arguments in the Paper filed September 26, 2005.

13. The 35 U.S.C. 103 rejections of claims 1-15, 17-19, and 21-33 over Boer et al in view of Hudak of record in the Office Action mailed May 17, 2005, Pages 20-23 Paragraph 16, have been withdrawn due to Applicant's statement in the remarks filed September 19, 2005 that the Boer reference qualifies under the 103(c) exemption.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

14. Claims 1-16, 19-20, 23-33, 37-68 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-37 of U.S. Patent No. 6,783,821 in view of Merziger (USPN 6,302,153). Note the double patenting rejection is repeated from the previous Office Action; however, it is rewritten below in order to address all of the new claims.

The claims of '821 teach a composite having two or more layers and comprising a layer I obtained from a molding composition comprising the same composition as taught in instant claims 1-16 (as described in claims 1-13 of '821). The composite further comprises a layer selected from polyamide 11, polyamide 12, polyamide 612, polyamide 1012, polyamide 1212, and mixtures thereof, which can be an outer layer (claim 21), and/or a layer selected from the group consisting of polyamide 6, polyamide 66, polyamide 6/66, and mixtures thereof (claims 14-15). The composite further contains two of the layer I (claim 18). The composite further contains a regrind layer (claim 19). The composite is formed in multiple sequences of layers that teach the sequences of layers claimed in claims 1 and 57 (claims 16-18). The composite further contains an electrically conductive layer (claim 22). The composite is in the form of a tube, has a corrugated shape, is in the form of a hollow article, or in the form of a film (claims 24-26 and 30). The composite further contains an elastomer layer adjacent to the outermost layer (claim 27). The composite is fuel piping, brake-fluid piping, coolant piping, hydraulic-fluid piping fuel-pump piping, air-conditioner piping, or a vapor line (claim 28). The composite is also a container or filler pipe (claim 29).

The claims of '821 fail to teach that the composite comprises a layer composition comprising at least one ethylene-vinyl alcohol copolymer. However, Merziger teaches that an EVOH layer is added to a tube formed of polyamides used to convey petrol as an intermediate layer, such as the tube of the claims of '821, in order to provide the tube with a lower permeability to hydrocarbons and their additives (col.1, l.15-20 and col.2, 1.43-47). Merziger also teaches that tubes used in conveying petrol, such as the tubes of the claims of '821, are required to possess lower permeability to hydrocarbons for safety and environmental protection reasons (col.1, 1.21-26). One of ordinary skill in the art would have recognized that the composite forming tubing of the claims of '821 and the tubing of Merziger are analogous insofar as both are related to polyamide based tubes used in conveying petrol and hydrocarbons, especially in motor vehicles.

Therefore, it would have been obvious to one having ordinary skill in the art at the time Applicant's invention was made to add an EVOH layer as one of the internal or intermediate layers of the composite of the claims of '821 in order to lower permeability of the composite to hydrocarbons for safety and environmental protection reasons, as taught by Merziger.

Claim Objections

15. Claim 55 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim 37 already comprises two of the (I) layers so claim 55 fails to further limit claim 37.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

16. Claims 30, 53, 54, and 65 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 30 and 65, the limitation "further comprising an elastomer layer adjacent to the outermost layer" renders the claim vague and indefinite because the specification teaches that the elastomer layer is on the outer surface of the outer Nylon layer and therefore it is not understood if the elastomer layer is becomes the outermost layer after applying the layer to the previously outermost layer or if the elastomer is interior of the outermost layer, which is not the embodiment taught in the specification. Therefore, if the elastomer layer is meant to be outside the claimed outermost layer, then outermost layer should not be named the outermost layer.

Regarding claims 53 and 54, the limitation "further comprising at least one layer…" renders the claim vague and indefinite because it is not understood if this limitation requires an additional layer be added to the composite of claim 37 or if the claims are meant to further define the layers already claimed in claim 37. Note if the limitations are meant only to further define the layers and not add an additional layer, then claim 53 will be a duplicate of claim 58.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

17. Claims 37-55, 58-64, and 66-68 are rejected under 35 U.S.C. 102(b) as being anticipated by Mitchell et al (USPN 5,460,771).

Regarding claims 37-44, Mitchell et al teach a layered composite comprising a first layer comprising PA6, PA11, PA12 or mixtures thereof (col.6, l.22-26), which depending on the percentage of each polyamide in the mixture and the percentage of additives specified comprises a composition of layer I comprising polyamide (a) or (c) or the combination of the two having at least 30 parts and not more than 60 parts of each and not more than 40 parts of polyamide (b). Note that because the claims 45-51 are dependent on claim 37 and claim 37 defines polyamide (b) with a concentration of 0 to 100 parts, the limitations on polyamide (b) are met when polyamide (b) is not present in the composition of layer I. A second "chemically similar" inner layer comprises the identical composition of the exterior layer (col.8, l.2-13). Regarding claim 52, the PA6, PA11, PA12, and mixtures thereof are block polyamides and therefore, whichever polyamides are chosen they will have at least one block copolymer comprising (a) and (c) monomer units. The intermediate bonding layer (II) is comprised of ethylene vinyl alcohol (col.11, l.3-10). Therefore, Mitchell et al teach the composite comprising a layer sequence I/II/I. Regarding claims 53-55 and 58, the inner and outer layers formed of the composition (I) as claimed comprises at least one member selected from the group consisting of PA11 and PA12 and from the group consisting of PA6 and PA66. Regarding claim 59, the intermediate bonding layer and the inner layer are electrically conductive (col.11, l.40-45). Regarding claim 60, since the intermediate layer is adjacent the innermost inner layer, the composite comprises at least one electrically conductive layer adjacent to the innermost layer. Regarding claim 61, the polyamides in at least one of (a), (c), or both comprise not more than 50% by weight of additives. Regarding claims 62-64, the composite is in the form of a corrugated hollow tube (see abstract). Regarding claims 66-67, the corrugated hollow tube is used as a fuel pipe or filler pipe (col.1, l.10-20). Regarding claim 68, by forming the pipes by coextrusion the composite is a film.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

18. Claims 1-16, 19-20, 23-24, 26-27, 29, 31-33, 37-59, 61-62, 64, and 66-68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Siour et al (USPN 6,177,162) in view of Green (USPN 6,670,004).

Siour et al teach a pipe or hose for conveying petrol in a motor vehicle (col.1, l.5-8). The wall of the pipe or hose comprises a composite having the following sequence of layers: inner layer/EVOH/binder/external layer (col.4, l.20-26). Regarding claims 1, 19-20, 23, 53-58, Siour further teaches that other layers such as regrind layers are added as intermediate layers and binder layers are also used between any of the intermediate layers and between the intermediate layers and the inner and/or outer layers (col.4, l.8-19). Therefore, Siour teaches embodiments in which the composite contains the following sequence of layers: inner layer/binder/EVOH/binder/regrind/binder/external layer. The inner layer is formed of a layer having at least one member selected from the group consisting of PA6 and PA66, and may also comprise PA12 and/or PA11 (col.1, l.28-45). The outer layer is formed of a layer having at least one member selected from the group consisting of PA11 or PA12 (col.3, l.22-26). Regarding claims 24 and 59, the inner layer comprises carbon black, which renders the layer electrically conductive (col.2, l.65-67). Regarding claims 27, 29, 62, and 64, the composite is in the form of a hollow tube (see abstract). Regarding claims 31-32 and 66-67, the corrugated hollow tube is used as a fuel pipe or filler pipe (col.1, l.10-20). Regarding claims 33 and 68, by forming the pipes by coextrusion the composite is a film.

Siour et al teach that the binder is formed of a maleic anhydride modified polyolefin and fail to teach that the binder is made from composition of layer (I) as claimed. However, Green teaches that binder layers used in the formation of pipes or hoses having multiple layers of polyamide can be maleic anhydride modified polyolefins, polyamide compositions including both PA6 and PA12, or a blend thereof (col.2, l.54-60). Green also teaches that the polyamide composition including both PA6 and PA12 is preferred over a maleic anhydride modified polyolefin binder layer because its upper temperature limit is higher up to about 300°C (col.2, l.63-65), which is an important property in the formation of pipes and hoses that will be used in the engine compartment of an automobile (col.1, l.25-34). Regarding claims 1-16, 26, 37-52 and 61, depending on the percentage of each polyamide in the polyamide composition of Green and the percentage of additives specified, the composition of layer I comprises polyamide (a) or (c) or the combination of the two having at least 30 parts and not more than 60 parts of each and not more than 40 parts of polyamide (b). Note that because the claims 9-15 and 45-51 are dependent on claims 1 and 37 and claims 1 and 37 define polyamide (b) with a concentration of 0 to 100 parts, the limitations on polyamide (b) are met when polyamide (b) is not present in the composition of layer I. One of ordinary skill in the art would have recognized that a polyamide composition comprising both PA6 and PA12 is substituted for a maleic anhydride modified polyolefin as a tie or binder layer in a polyamide based pipe or hose, in order to increase the temperature resistance of the pipe or hose, as taught by Green.

Therefore, it would have been obvious to one having ordinary skill in the art at the time Applicant's invention was made to substitute the tie or binder layer comprising the polyamide composition of Green for the binder layer(s) of Siour et al in order to increase the temperature resistance of the pipe or hose, as taught by Green.

19. Claims 1-16, 19-20, 23-24, 26-27, 29, 31-33, 37-59, 61-62, 64, and 66-68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Siour et al and Green and further in view of Borggreve et al (USPN 5,859,148).

Siour et al and Green taken as a whole teach all that is claimed the claims as shown above, but fail to explicitly teach the polyamine-polyamide copolymer within the Markush group of claims 1 and 37. However, Borggreve et al teach star-branched polymers consisting of a core compound having at least three functional groups, including dendrimer amine, from which emanate linear polymer chains having at least one hetero atom in the chain, including polyamide. The polyamides may be obtained by polycondensation of diacids and diamines, amino acids, or lactams (col.2, l.27-33). The dendrimer amines may have at least 11 nitrogen atoms and a number average molecular weight of at least 500g/mol, as is immediately envisaged from the formula set forth at column 3. In example II, nylon 66 is reacted with a dendrimer amine. Borggreve et al also teach that star-branched polymers have a viscosity many times lower than that of the non-branched polymer having a corresponding total molecular weight, therefore making the star-branched polyamine-polyamide copolymer easier to extrude than the corresponding polyamide homopolymers (col.3, l.54-62). One of ordinary skill in the art would have recognized that a star-branched polyamine-polyamide copolymer would be added to a polyamide composition in order to lower the intrinsic viscosity so that extruding the composition is easier, as taught by Borggreve et al.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the applicant's invention was made to add the star-branched polyamine-polyamide copolymer of Borggreve et al to the polyamide composition of Green in order to improve the extrudability of the composition, as taught by Borggreve et al.

20. Claims 25, 28, 60, and 63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Siour et al in view of Green alone or in combination with Borggreve as applied to claims 1 and 37 above, and further in view of Mitchell et al (USPN 5,460,771).

Regarding claims 25 and 60, Siour, Green, and Borggreve et al taken as a whole teach all that is claimed in claims 1 and 37 as shown above, and teach that at least one layer is electrically conductive. However, they fail to teach that at least one layer adjacent to the innermost layer is electrically conductive. However, Mitchell et al teach that in addition to the innermost layer, the intermediate layer or layers are also made electrically conductive by adding conductive materials, in order to exhibit conductive or static dissipative characteristics (col.11, l.33-45). One of ordinary skill in the art would have recognized that intermediate layers adjacent to the innermost layer of a pipe or hose for conveying petrol are made electrically conductive, so that the hose or pipe will exhibit conductive or static dissipative characteristics, as taught by Mitchell et al.

Therefore, it would have been obvious to one having ordinary skill in the art at the time Applicant's invention was made to add electrically conductive materials to one of the intermediate layers adjacent the innermost layer of the pipe or hose of Siour, Green and Borggreve, in order to render the pipe or hose fully conductive or static dissipative, as taught by Mitchell et al.

Regarding claims 28 and 63, Siour, Green and Borggreve et al fail to teach that at least one region of the composite has a corrugated shape. However, Mitchell et al teach that Nylons possess significant elastic memory, which makes it difficult to successfully bend a piece of tubing into the shape or contours necessary in the particular automobile application. Therefore, Mitchell et al teach that the tubing should have corrugations at the appropriate contour regions to accommodate the particular bends and angles without imparting under fatigue or stress (col.3, l.1-17). One of ordinary skill in the art would have recognized that a hose used in automotive vehicles are required to be bent to conform to the contours of the vehicle and that Nylons possess elastic memory which makes bending the hose or pipe into a certain contour or shape difficult, as taught by Mitchell et al.

Therefore, it would have been obvious to one having ordinary skill in the art at the time Applicant's invention was made to form corrugation regions in the composite tube of Siour, Green, and Borggreve, in order to render the tube capable of maintaining particular bends and angles without imparting under fatigue or stress, as taught by Mitchell et al.

21. Claims 30 and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Siour in view of Green alone or in combination with Borggreve as applied to claims 1 and 37 above, and further in view of Kitami et al (USPN 5,362,530).

Siour, Green, and Borggreve teach all that is claimed in claims 1 and 37 as shown above, but fail to teach the composite further comprising an elastomer layer adjacent the outermost layer. However, Kitami et al teach that elastomer cover layers are added to polyamide based hoses and pipes in order to provide a layer that is highly moisture-proof, heat resistant, and weather resistant, and fully retentive of physical qualities at elevated temperatures (see abstract and col.5, l.23-26). One of ordinary skill in the art would have recognized that a cover layer of elastomer is added adjacent to the outermost layer of a polyamide-based hose or pipe for conveying fuel oils, in order to provide the hose or pipe with enhanced moisture, heat, and weather resistance, as well as, an outer layer that is fully retentive of physical qualities at elevated temperatures, as taught by Kitami et al.

Therefore, it would have been obvious to one having ordinary skill in the art at the time Applicant's invention was made to add an elastomer layer adjacent the outermost layer of Siour, Green, and Borggreve, in order to provide the hose or pipe with enhanced moisture, heat, and weather resistance, and retention of physical properties at elevated temperatures, as taught by Kitami et al.

22. Claims 37-55, 58-64, and 66-68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitchell et al (USPN 5,460,771) in view of Borggreve et al (USPN 5,859,148).

Mitchell et al teach all that is claimed in claim 1, but fail to explicitly teach the polyamine-polyamide copolymer within the Markush group of claim 1, 35, or 36. However, Borggreve et al teach star-branched polymers consisting of a core compound having at least three functional groups, including dendrimer amine, from which emanate linear polymer chains having at least one hetero atom in the chain, including polyamide. The polyamides may be obtained by polycondensation of diacids and diamines, amino acids, or lactams (col.2, l.27-33). The dendrimer amines may have at least 11 nitrogen atoms and a number average molecular weight of at least 500g/mol, as is immediately envisaged from the formula set forth at column 3. In example II, nylon 66 is reacted with a dendrimer amine. Borggreve et al also teach that star-branched polymers have a viscosity many times lower than that of the non-branched polymer having a corresponding total molecular weight, therefore making the star-branched polyamine-polyamide copolymer easier to extrude than the corresponding polyamide homopolymers (col.3, l.54-62). One of ordinary skill in the art would have recognized that a star-branched polyamine-polyamide copolymer would be added to a polyamide composition in order to lower the intrinsic viscosity so that extruding the composition is easier, as taught by Borggreve et al.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the applicant's invention was made to add the star-branched polyamine-polyamide copolymer of Borggreve et al to the polyamide composition of Mitchell et al in order to improve the extrudability of the composition, as taught by Borggreve et al.

23. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mitchell et al (USPN 5,460,771) alone or in view of Borggreve et al (USPN 5,859,148) as applied to claim 37 above, and further in view of Hata et al (USPN 6,033,749).

Mitchell et al alone or in combination with Borggreve et al teach all that is claimed in claim 37, but fails to explicitly teach a regrind layer. However, Hata et al teach that it is well known in the art of manufacturing fuel tanks to use scraps resulting from molding or recovered from consumers alone or in combination with virgin materials to form layers, because recycling of the scrap material is desirable for environmental protection and cost reduction. One of ordinary skill in the art would have realized that adding a regrind layer either alone or in combination with virgin material is added to an article when forming fuel components or tanks for environmental protection or cost reduction, as taught by Hata et al.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the applicant's invention was made to add a regrind as a separate layer or component of a blend to the article in order to protect the environment or reduce cost, as taught by Hata et al.

24. Claims 30 and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitchell et al alone or in view of Borggreve et al as applied to claim 37 above, and further in view of Kitami et al (USPN 5,362,530).

Mitchell and Borggreve teach all that is claimed in claim 37 as shown above, but fail to teach the composite further comprising an elastomer layer adjacent the outermost layer. However, Kitami et al teach that elastomer cover layers are added to polyamide based hoses and pipes in order to provide a layer that is highly moisture-proof, heat resistant, and weather resistant, and fully retentive of physical qualities at elevated temperatures (see abstract and col.5, l.23-26). One of ordinary skill in the art would have recognized that a cover layer of elastomer is added adjacent to the outermost layer of a polyamide-based hose or pipe for conveying fuel oils, in order to provide the hose or pipe with enhanced moisture, heat, and weather resistance, as well as, an outer layer that is fully retentive of physical qualities at elevated temperatures, as taught by Kitami et al.

Therefore, it would have been obvious to one having ordinary skill in the art at the time Applicant's invention was made to add an elastomer layer adjacent the outermost layer of Mitchell and Borggreve, in order to provide the hose or pipe with enhanced moisture, heat, and weather resistance, and retention of physical properties at elevated temperatures, as taught by Kitami et al.

ANSWERS TO APPLICANT'S ARGUMENTS

25. Applicant's arguments regarding the 35 U.S.C. 102 and 103 rejections of record have been considered but they are moot since the rejections have been withdrawn.

26. Applicant's arguments regarding the double patenting rejections over US 6,677,015 and US 6,355,358 in view of US 6,177,516, have been considered but they are moot since the rejections have been withdrawn.

27. Applicant's arguments regarding the double patenting rejections of claims 1-33 over US 6,783,821 in view of Merziger have been considered but they are not persuasive.

In response to Applicant's argument that the combination fails to disclose the claimed layer sequence, specifically claim

17, teaches the claimed layer sequence except it is missing an EVOH layer. Merziger teaches that the EVOH layer is added to the composite as an intermediate layer therefore, within the layer sequence in order to provide lower permeability to hydrocarbons and their additives, as shown above in the rewritten double patenting rejection.

28. Applicant's arguments regarding the objection to the abstract has been considered but it is moot since the objection has been withdrawn.

Conclusion

29. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher P. Bruenjes whose telephone number is 571-272-1489. The examiner can normally be reached on Monday thru Friday from 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon can be reached on 571-272-1498. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Christopher P Bruenjes
Examiner
Art Unit 1772

CPB CPB
November 2, 2005

HAROLD PYON
SUPERVISORY PATENT EXAMINER
1772

11/2/2005